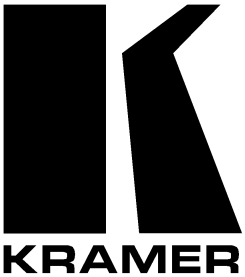
Kramer Electronics, Ltd.



USER MANUAL

Model:

VA-10

Cable Delay Corrector

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 350-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your **VA-10** *Cable Delay Corrector*, which is an invaluable tool for correcting delay when long cables are used.

The package includes the following items:

- **VA-10** *Cable Delay Corrector*
- Power adapter (12V DC Input)
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

3 Overview

The Kramer **VA-10** *Cable Delay Corrector* is a cable delay (skew) corrector for RGB signals. The unit is designed to correct the problem of differing delay times in analog signals, such as RGB[4]. The **VA-10** lets you adjust and thus match the delays in the three signals. The **VA-10** features side panel controls for adjusting the red, green and blue skew (delay). It is 12VDC fed and is housed in a Kramer TOOLS enclosure.

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

4 For example, if the RGB was sent via a CAT5 cable at some stage during the video processing, then the different lengths of the pairs within the CAT5 cable will create different delays (skewing) of the R, G and B

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Positioning your Kramer **VA-10** away from moisture, excessive sunlight and dust and avoiding interference from neighboring electrical appliances that may adversely influence signal quality

4 Your VA-10 Cable Delay Corrector

Figure 1 and Table 1 define the **VA-10** *Cable Delay Corrector*:

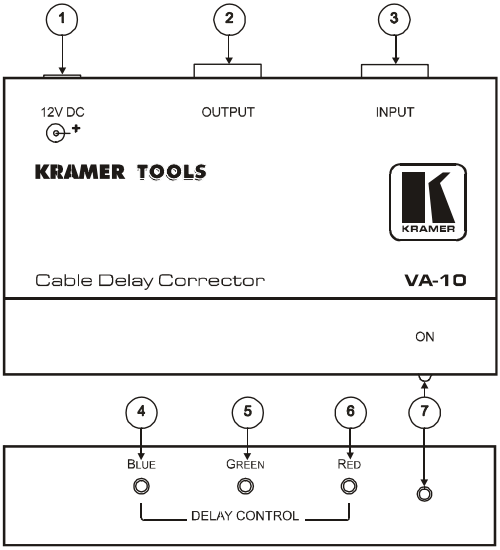

Figure 1: VA-10 Cable Delay Corrector

Table 1: VA-10 Cable Delay Corrector Features

#	Feature		Function
1	*12V DC*		+12V DC connector for powering the unit
2	HD15F *OUTPUT* Connector		Connects to the output acceptor
3	HD15F *INPUT* Connector		Connects to the input source
4	*DELAY CONTROL*	*BLUE* Trimmer	Adjusts the blue delay[1] (up to 62ns)
5		*GREEN* Trimmer	Adjusts the green delay[1] (up to 62ns)
6		*RED* Trimmer	Adjusts the red delay[1] (up to 62ns)
7	*ON* LED		Illuminates when receiving power

1 Insert a screwdriver into the small hole and carefully rotate it to adjust the delay

5 Connecting the VA-10 Cable Delay Corrector

To connect the **VA-10** (as the example in Figure 2 illustrates), do the following:

1. Connect a computer graphics source to the XGA INPUT of a **PT-110**[1] *XGA Line Transmitter* and connect the LINE OUTPUT on the **PT-110** to the LINE IN RJ-45 connector on a **TP-120**[1] *XGA Line Receiver* unit. Connect the XGA OUT connector on the **TP-120** unit to the HD15F INPUT connector on the **VA-10**.
2. Connect the HD15F OUTPUT connector on the **VA-10**, to the RGB acceptor (for example, a projector).
3. On each of the **VA-10**, **TP-120** and **PT-110**, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
4. Use the BLUE, RED and GREEN trimmers to adjust the blue, red and green color delays, as required.

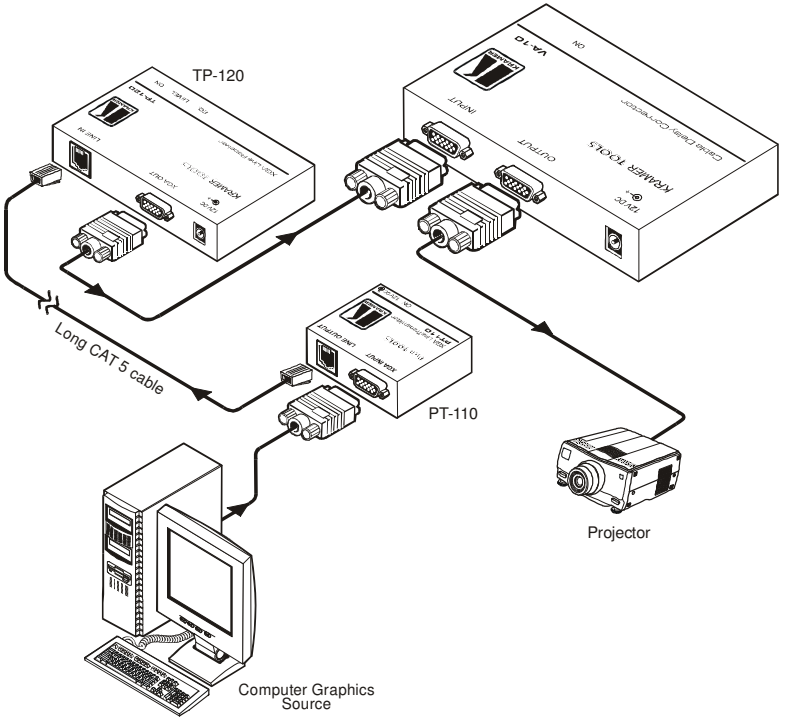

Figure 2: Connecting the VA-10 Cable Delay Corrector

1 Refer to the PT-110, WP-110, TP-120 user manual, which can be downloaded at http://www.kramerelectronics.com

6 Technical Specifications

Table 2: Technical Specifications[1] of the VA-10 Cable Delay Corrector

INPUTS:	1 analog red, green, blue input signals - 0.7 Vpp/75Ω, H & V sync, TTL level, on an HD15F connector
OUTPUTS:	1 analog red, green, blue output signals - 0.7 Vpp/75Ω, H & V sync, TTL level, on an HD15F connector
MAX. OUTPUT LEVEL:	1Vpp
BANDWIDTH (-3dB): R,G,B	140MHz
DIFF. GAIN:	0.8%
DIFF. PHASE:	0.7%
K-FACTOR:	0.4%
S/N RATIO:	71dB
CONTROLS:	Delay control via 3 (RGB) trimmers, 0 to 62ns
COUPLING:	AC IN and OUT
POWER SOURCE:	12VDC, 150mA
DIMENSIONS:	12 cm x 7.5 cm x 2.5 cm (4.7" x 2.95" 0.98", W, D, H)
WEIGHT:	0.3 kg (0.67 lbs.) approx
ACCESSORIES:	Power supply, mounting bracket
OPTIONS:	19" rack adapters RK-T1, and/or RK-T3

1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for three years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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P/N: 2900-000052 REV 1